1. (amended) A method of [training belief functions] <u>recognizing an object</u>, comprising the steps of:

gathering a set of information <u>from a sensor, wherein said information is representative of a characteristic of said object</u>;

creating <u>Dempster-Shafer basic</u> probability assignments <u>(bpa's)</u> based on said set of information<u>, wherein said Dempster-Shafer bpa's represent a probability that said object comprises a target</u>;

creating combinations of said [basic probability assignments] <u>Dempster-Shafer bpa's, wherein said combinations of said Dempster-Shafer bpa's represent the probability that said object comprises a target</u>;

measuring an error present in said [probability assignments] <u>Dempster-Shafer bpa's</u> and said combinations of [probability assignments] <u>said Dempster-Shafer bpa's</u>;

calculating updates [of] <u>to</u> said [probability assignments] <u>Dempster-Shafer bpa's</u> and said combinations of [probability assignments] <u>said Dempster-Shafer bpa's</u> based on said error; and

[modifying] <u>refining</u> said probability [assignments] <u>of said object comprising a target by modifying said Dempster-Shafer bpa's</u> and said combinations of [probability assignments using] <u>said Dempster-Shafer bpa's based on</u> said updates.

8. (amended) The method of Claim 1 wherein said step of measuring error comprises a comparison between said [probability assignments] <u>Dempster-Shafer bpa's</u> and a known desired result.

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8. (amended) The method of Claim 1 wherein said step of measuring error comprises a comparison between said combinations of [probability assignments] said Dempster-Shafer bpa's and a known desired result.

9. (amended) The method of Claim 1 wherein said step of measuring error comprises a comparison between said [probability assignments] Dempster-Shafer bpa's and a set of characteristics of a desired result.

10. (amended) The method of Claim 1 wherein said step of measuring error comprises a comparison between said combinations of [probability assignments] said Dempster-Shafer bpa's and a set of characteristics of a desired result.

11. (amended) The method of Claim 1 wherein said updates [of aid probability assignments] to said Dempster-Shafer bpa's are calculated using a gradient-descent rule.

12. (amended) An apparatus for [learning belief functions] recognizing an object comprising:

a signal processing unit;

a [set of information sources which couple] sensor that couples a set of information to said processing unit; and

a memory in communication with said signal processing unit, said memory containing data representative of a process to be executed by said signal processing unit;

said [processing unit programmed to] process comprising the steps of:

i) gathering a set of information from said sensor, wherein said information is representative of a characteristic of said object

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ii)   [create a set of] creating Dempster-Shafer basic probability assignments (bpa's) based on said set of information, wherein said Dempster-Shafer bpa's represent the probability that said object comprises a target;

iii)   [create] creating combinations of said [probability assignments] Dempster-Shafer bpa's, wherein said combinations of said Dempster-Shafer bpa's represent a probability that said object comprises a target;

[ii]iv)   [measure] measuring an error present in said [probability assignments] Dempster-Shafer bpa's and said combinations of [probability assignments] said Dempster-Shafer bpa's;

[i]v)   [calculate] calculating updates [of] to said [probability assignments] Dempster-Shafer bpa's and said combinations of [probability assignments] said Dempster-Shafer bpa's based on said error; and

vi)   [modify] refining said probability [assignments] of said object being a target by modifying said Dempster-Shafer bpa's and said combinations of [probability assignments using] said Dempster-Shafer bpa's based on said updates.

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14. (amended)   The apparatus of Claim 13 wherein said set of information [sources comprise] comprises rules.

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15. (amended)   The apparatus of Claim 13 wherein said set of information [sources comprise] comprises opinions.

15 17. (amended)   The apparatus of Claim 13 wherein said error measurement comprises a comparison between said [probability assignments] Dempster-Shafer bpa's and a known desired result.

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